

Appl. No. 09/849,049

Amdt. Dated December 12, 2005

Reply to Office action of Sep. 4, 2003

~~ABSTRACT OF THE DISCLOSURE~~

~~In a~~ A singulation saw for sawing either substrate or wafers ~~there is provided~~ comprises a pair of counter-rotating saw blades mounted for independent movement in a vertical direction for alternatively engaging with a ~~first~~ substrate to be singulated. The singulation saw further comprises a ~~A~~ transport system comprising a pair of substrate carriers reciprocates the substrates ~~first substrate under the pair of saw blades while alternate ones of the saw blades are engaged to cut the substrate.~~ While the first substrate is being cut, the second or other substrate carrier sequentially unloads a cut substrate, loads a new un-cut substrate and then moves the uncut substrate to a vision system for determining the position of the substrate relative to the second carrier and then positions the second carrier and its substrate in a standby position ready to be cut by the pair of saw blades that are cutting the first substrate. As the first cut substrate is moved to an unload position, the new uncut substrate is moved into a cutting position; ~~thus, a minimum loss of cutting time is incurred and a minimum amount of cooling water is needed.~~